Docket No. 56370 (71987)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	C. Liao	CONF. NO.:	9374
U.S. SERIAL NO.:	09/929,765	EXAMINER:	M. Warren
FILED:	August 14, 2001	GROUP:	2815
FOR:	BALL GRID ARRAY PACKAGE WITH ELECTRICALLY-CONDUCTIVE BRIDGE		

Commissioner for Patents
P.O. Box 1450
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Sir:

RESPONSE TO OFFICE ACTION

Applicant is in receipt of the Office Action dated December 12, 2006 of the above-referenced application. Applicant responds to the Office Action as follows.

Claims 6, 8, 11, and 14 are pending in the application.

Independent claims 6 and 11 each recite a ball grid array package utilizing a "single-layer substrate," and having at least "a plurality of continuous electrically-conductive traces … including at least one being interposed between a second subgroup of the bond fingers and their corresponding vias" (see elements (a) and (f) of independent claims 6 and 11).

Claims 6 and 14 were rejected under 35 USC 103(a) as being unpatentable over "Applicant's Prior Art Figures 1 and 2 (APAF)" in view of Japanese Publication 60-157238 to "Takahama". Claim 8 was rejected under 35 USC 103(a) as being unpatentable over APAF in view of Takahama, and further in view of U.S. Patent 3,560,256 to Abrams. Claim 11 was rejected under 35 USC 103(a) as being unpatentable over APAF in view of Takahama and Abrams. These rejections are respectfully traversed.

The proposed combinations of "APAF" in view of Takahama and/or Abrams do not teach or suggest a ball grid array package utilizing a "single-layer substrate," and having at least "a plurality of continuous electrically-conductive traces … including at least one being interposed between a second subgroup of the bond fingers and their corresponding vias" (see elements (a) and (f) of independent claims 6 and 11).

In the Office Action of 12/12/2006, "APAF" was cited as PRIOR ART FIGS. 1 and 2 of the application. However, the trace layout scheme depicted in FIG. 2 does not include at least one electrically-conductive trace interposed between a subgroup of bond fingers and corresponding vias. As shown in PRIOR ART FIG. 2, bond fingers 60A, 60B, 60C, and 60D are connected to corresponding vias 80A, 80B, 80C, and 80D by continuous electrically-conductive traces 70A, 70B, 70C, and 70D, respectively (see specification at page 2, lines 6-18). In other words, PRIOR ART FIG. 2 does **not** address the problem of trace interposition in a circuit layout design.

In Takahama, a jumper connection electrode 7 forms a connection between semiconductor elements 4 and 5 (see Abstract and FIG. 2 of Takahama). However, even if Takahama was somehow combined with "APAF," the proposed combination would not result in the Applicant's claimed invention, at least because the jumper connection electrode 7 of Takahama is not necessary in PRIOR ART FIGS. 1 and 2, where the traces 70A to 70D are formed continuously without any trace interposition.

Moreover, Takahama discloses the use of the jumper connection electrode 7 to connect the semiconductor elements 4 and 5, whereas PRIOR ART FIGS. 1 and 2 relate to connections between bond fingers and vias.

In PRIOR ART FIG. 3, the problem of trace interposition is illustrated, and it is "impossible to use a continuous electrically-conductive traces to connect the bond finger 60B to the via 80A" (specification at page 3, lines 2-3). PRIOR ART FIG. 4 illustrates a conventional solution to the problem of trace interposition, in which a **multi-layer substrate** is used.

For at least the reasons described above, the proposed combinations of "APAF" in view of the Takahama and/or Abrams references do not teach or suggest the Applicant's claimed invention as recited in independent claims 6 and 11. Therefore, independent claims 6 and 11 and their respective dependent claims 8 and 14 are patentable over the proposed combinations.

It is believed the application is in condition for immediate allowance, which action is earnestly solicited.

Respectfully submitted,

/Steven M. Jensen/

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